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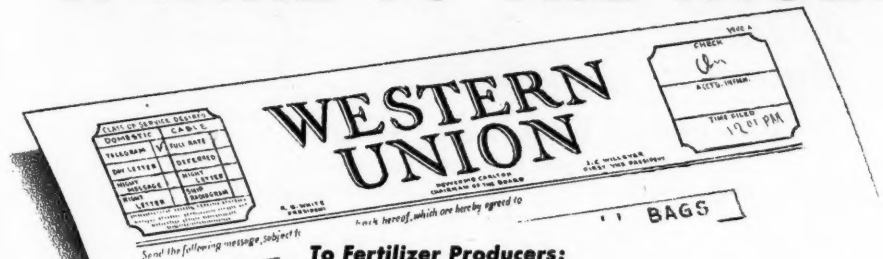

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The American Farmer's Stake In OPA Price Control Program*

By DEXTER M. KEEZER

Deputy Administrator, Office of Price Administration

IN DISCUSSING "The American Farmer's Stake in the OPA Price Control Program," I shall focus my remarks on the question of whether or not the American farmers have learned the economic lesson their experience in the last war should have taught them or whether they must learn the lesson all over again in the school of terribly hard knocks.

In order to understand how this question arises, it is necessary to cut back to the last World War. Then, as you no doubt have been reminded at each one of your previous seventeen annual conventions, agricultural prices were allowed to run riot along with prices generally and to come down in the post war period with a devastating crash. As the older of your members ruefully recall, the crash was disastrous for almost everyone in the country except perhaps a few professional receivers in bankruptcy. They did a rushing business in 1920 when industrial inventories were written down by almost 11 billion dollars—a lot of money in those days and in 1922 when bankruptcies were twice as high as in any previous year.

But bad as was the blow which the post-war deflation gave to business and industry, it was not nearly as bad as that which it gave to agriculture. As farm prices went zooming up, land values went even faster. As they went zooming down, one of the principal agrarian crops became foreclosures. Not long ago, the whole dreary history was summed up in a Department of Agriculture pamphlet "Farm Land Values in the War." There it was stated:

"It has taken nearly 25 years for the consequences of the upsurge in land values which accompanied World War (number) 1 to run its course. That upsurge, we now see, was unjustified when it pulled land values to a level higher than earnings could pay for over a long period. Now we know and can evaluate its direct consequences—excessive foreclosures, reduced living standards, and deterioration of land and buildings."

The same cheerless record of disaster for agriculture as a result of the price boom and bust of the last war is written in the record of prices. This record, as compiled by the Department of Agriculture, shows that for almost an even twenty years after the collapse following the last war, American farmers were consistently at a disadvantage—sometimes small, sometimes large, but always a disadvantage—in terms of the prices at which they sold their stuff and the prices they were required to pay for the things they needed.

Since 1933, as you well know, the Federal Government has made titanic efforts to get the farmers back to "parity." I am sure I can add nothing to the knowledge of those efforts you already possess. I think, however, that it is appropriate at this juncture to underline the nature of this parity conception. The idea has been simply to get farmers back to a spot where the prices they get for their products would give them the same relative purchasing power they had

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during the five years before the beginning of the last war, before they had their spree of uncontrolled inflation and its awful 20-year hangover.

It would certainly seem that that long period of agrarian wretchedness—one of the truly dark chapters in American history—would have taught at least our generation never to run the risk of a repetition. But, alas, right now, as I see it, we are poised where it is quite possible to go careening into another twenty-year cycle of disaster and tragedy for American farmers.

As a nation, we learned a lot from the disastrous consequences of our failure to control prices effectively during the last war. Consequently an integral part of our war equipment for fighting the present war, represented by the Office of Price Administration, is machinery to hold prices in check.

Price Control Affected

Right now, this machinery is working to extraordinarily good effect. As you know, on May 18th, its full power was directed by the issuance of a General Maximum Price Regulation toward preventing further price increases in almost all commodities and services bought and sold in the United States. The first comprehensive report on the results, made by the Bureau of Labor Statistics of the Department of Labor a few days ago, is decidedly encouraging. Between May 15th and June 2nd, after increasing continuously for a period of a year and a half, the cost of living in the large cities of the United States declined a little bit—by one-tenth of one per cent to be exact. That is not a very imposing percentage, but coming as it does after nineteen months of continuous rise in the cost of living, it represents an accomplishment of great consequence.

However, this single encouraging figure does not tell the whole story and obscures grave and what might become fatal defects in the present machinery for price control. These defects are reflected in the notation by the Bureau of Labor Statistics that the slight decrease in the cost of living between May 15th and June 2nd "represents a balance between increases in the prices of certain foods which are not subject to control and decreases in the prices of controlled foods, clothing, house furnishings and rents in some areas."

With an understandable solicitude for long suffering agriculture, Congress has, as you know, provided that the Office of Price Administration cannot impose upon farm products until they attain a height to be gauged in various ways, the most important of which is 110 per cent of parity. Also, the OPA is legislatively forbidden to put maximum prices—otherwise known as "ceilings" or "ceiling prices"—on processed agricultural products unless these "ceilings" return to agricultural producers prices representing 110 per cent of parity or approximately their equivalent.

As a consequence, almost a third of the foods, the prices of which are included in the BLS Cost of Living Index, are exempted from the General Maximum Price Regulation. Some share of these foods is not covered because it is administratively too difficult to fix maximum prices on them, but even when this group is taken into account a large part of the food budget of the American family and hence its cost of living remains exempted by lesiglative command from the General Price Regulation. This arrangement is reflected in the fact that the average food prices calculated in the BLS Cost of Living Index continued to rise between May 15th and June 2nd, increasing by three-tenths of one per cent, after having increased by one and seven-tenths per cent between April 15th and May 15th.

Danger of General Inflation

This set-up, of course, gives agriculture a current advantage. Farmers can continue to seek, and no doubt secure, higher prices for many products while the prices of products generally are pegged. They do so, however, at the great risk of destroying the general price ceiling and opening the way for the sort of price boom which characterized the last war and which, as I have also indicated, visited terrible and long sustained disaster upon the farmer when it crashed.

If the price of food, which constitutes the most provocative part of the cost of living, continues to go up, it will obviously provide the incentive for wage workers to demand increases in pay as an offset for the increased cost of living. If such wage demands are met, they in turn will impose what, in the absence of a general wage stabilization, can become an irresistible upward pressure on the general price ceiling. If this pressure should prove irresistible, there is every reason to believe that the farm population will be the worst and longest suffering.

In an effort to avoid this possibility the President has, as you know, proposed a general stabilization of wages. He has also proposed, as a part of the 7-Point Wartime Economic Program, that the legislative provision designed to secure for farmers 110

per cent of parity prices be repealed and that —quoting the President precisely—" . . . the original and excellent objective for obtaining parity for the farmers of the United States be restored."

It might, I take it, be unseemly for me to discuss this specific legislative proposal now pending before Congress. I am sure, however, that in keeping with my general theme, I can with propriety remark that insofar as this is a measure to protect and preserve the price ceiling—and it is clearly that in large degree—our economic history since the beginning of the last war argues irrefutably that it is a measure designed for the protection of the American farmer.

In the light of this history, a move to bring agriculture prices under the general ceiling forthwith, it seems to me, is clearly indicated if the farmers are not to take undisputed leadership in a national unpopularity contest as hoisters of the cost of living during these difficult times. And even more important, such a move seems to me to be clearly indicated to protect the farmers themselves from the real risks of a repetition of more decades of economic misery following a brief price boom.

I can readily understand the great temptation which the possibility of receiving high prices must give to the farmers who, for so many years, have had the short end of the stick. Also, I sympathize fully with any arrangement which would adjust the economic wrongs suffered by the farmers during their grim years since the last war. The decisive trouble is, however, that in the nature of the case they cannot enjoy special privileges in the market now without running the grave risk of touching off a runaway price boom that will again plunge them into the valley of economic despair.

In this connection, I think it appropriate to cite a decision recently made at the suggestion of the Office of Price Administration by the Northwestern Bell Telephone Company, a corporate affiliate of the American Telephone and Telegraph Company. The Northwestern Company has installed an increase of 15 per cent in the rates for its services in the State of Iowa and was enjoying a comparable increase in its revenues as a result. The OPA has no jurisdiction over public utility rates. However, we asked representatives of the Company and the A. T. and T. to join us in a discussion of the rate increase and pointed out that it ran in direct conflict to our policy of avoiding price increases and made its own contribution to increasing the threat of a disastrous inflation. Consequently, the Company voluntarily withdrew its rate increase, although it had a perfectly legal right to maintain it as long as it saw fit, and thus made a significant and much appreciated contribution to the effort to keep prices down. This example seems to me one which our farmers might well study carefully, particularly in the light of the fact that our telephone companies during recent decades have made a notable record for financial acumen.

Of course, upon the success of our price control program depends much more than the economic fate of the farmer. The question of how much the war is going to cost—a matter in which farmers have a great interest —is definitely involved. It is conservatively estimated that on war expenditures of 25 billions of dollars up the end of April of this year, our price control program had saved 6 billions of dollars; on a program of expenditures totaling 130 billions of dollars scheduled during the next 20 months, it will save an additional 62 billions, if it continues to work as well as it has thus far. The saving in the case of certain key war commodities is even more impressive. Up to the end of April, we had spent $600 millions for steel. If the price of steel during this war had followed the price of steel during the last war, we would have spent $200 million more. During the next 20 months, we are scheduled to spend 4.8 billions of dollars for steel. That much steel would cost 3.6 billions more at the price at which steel sold during the comparable period of the last war. Up to the end of April, we had spent 180 billions of dollars for copper. If copper had sold during this war at the price it did during the last war, it would have cost an additional $230 million to get that copper. If we can continue with the same degree of success in price control that we have had, we will save 1.3 billions of dollars on copper during the next 20 months.

In recent weeks there has been alarmed comment in some segments of the press about a proposal on the part of OPA to have a staff of approximately 66,000 people and a budget of approximately $161 million during the coming fiscal year. This proposal, however, looks considerably less alarming when it is realized that if OPA can make its price control stick over the next 20 months, each of these employees—over half of whom will be providing clerical services for volunteers on the local War Price and Rationing Boards—can save a million dollars apiece in the cost

(Continued on page 22)

Analysis of the Production of Ordinary Superphosphate in the United States in the Calendar Years 1940 and 1941*

By K. D. JACOB

Bureau of Plant Industry, Beltsville, Md.

(Continued from the July 18th issue)

Production of Superphosphate in 1940 and 1941

IN 1940 and 1941 the total productions of ordinary superphosphate and wet-mixed base in the continental United States were equivalent, respectively, to 4,527,814 and 5,055,737 short tons of material containing 16 per cent of available P_2O_5 (Table 5). As pointed out in a preceding paragraph, the figure for 1941 includes estimates (made by the companies themselves) for the portion of the year (three months or less) subsequent to the submission of the respective reports of the individual companies. That these figures are more complete than those shown in the superphosphate monthly reports of the Bureau of the Census, is evidenced by the fact that they exceed slightly the Bureau's figures (4,522,175 and 5,003,833 tons, respectively) which include not only ordinary superphosphate, wet-mixed base and wet-mixed goods but also all other types of commercially produced superphosphates, such as the 32 and 45 per cent materials. It is estimated that the total commercial productions of the so-called concentrated superphosphates, which are not included in the present study, were equivalent to approximately 700,000 and 740,000 tons of 16 per cent material in 1940 and 1941, respectively. It is known that the monthly reports of the Bureau of the Census for 1941 did not include the output of at least 10 plants that produced ordinary superphosphate, wet-mixed base and concentrated superphosphate equivalent to a total of approximately 627,000 tons of 16 per cent material.

The total production in 1941 exceeded that in 1940 by 527,923 tons or 11.7 per cent (Table 5). By regions, the percentage increases ranged from 3.4 in the Middle Atlantic States to 30.5 in New England. All the states, except Mississippi, showed increases ranging from 1.5 per cent in Maryland to 30.5 per cent in Massachusetts. The production in Mississippi decreased 1.4 per cent; seven plants were operated in the State in 1940 and six in 1941. In point of state tonnage the greatest increases were in Georgia (116,709), Tennessee (57,253), North Carolina (54,698) and South Carolina (54,369). In regional tonnage the increase in the South (398,164) was slightly more than three times as great as in all other sections of the country.

Maryland is the only state that produces as much as a million tons of superphosphate annually (1,054,285 tons in 1941), and the output is entirely in Baltimore and environs. Other states that each produced more than 300,000 tons of superphosphate in 1941 are Georgia 537,815, Ohio 405,040, Virginia 355,778, Tennessee 344,662, South Carolina 329,222 and North Carolina 310,592. Thus, these six states produced a total of 3,337,394 tons or 66 per cent of the entire domestic production.

The 1941 output of superphosphate in the 12 cities, including their respective environs, that each produced 100,000 tons or more of equivalent 16 per cent material totaled 2,985,424 tons or 59 per cent of the country's production. The output in Baltimore alone was 1,054,285 tons, or 35.3 per cent of the total production in the 12 cities, and was more than three times the output in Norfolk, Virginia, the next largest producing center. In the descending order of their respective productions the other 10 cities are Nashville, Tenn., Carteret, N. J., Charleston, S. C., Wilmington, N. C., Savannah, Ga., Atlanta, Ga., Cincinnati, Ohio, East St. Louis, Ill., Montgomery, Ala., and Philadelphia, Pa. The production in Atlanta (140,451 tons) and Savannah (161,998 tons) amounted to 56.2 per cent of the total Georgia output. The output of the 7 cities on the Atlantic seaboard totaled 2,209,734 tons or 43.7 per cent of the country's production.

The production in the first, second, third, and fourth quarters of 1940, respectively, amounted to 25.8, 22.5, 24.4, and 27.3 per cent of the total. The corresponding figures

Table 5

PRODUCTION OF ORDINARY SUPERPHOSPHATE, CALENDAR YEARS 1940 AND 1941

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

Region and State	1940[1]					1941[2]					Increase of total production in 1941 over 1940	
	January-March	April-June	July-September	October-December	Total	January-March	April-June	July-September	October-December[3]	Total[3]		
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Per cent*
New England[4]	17,415	8,423	27,490	25,889	79,217	32,207	23,382	20,250	27,562	103,401	24,184	30.5
Middle Atlantic	331,695	387,234	367,791	335,320	1,422,040	347,256	446,358	326,221	350,862	1,470,697	48,657	3.4
Maryland	229,463	291,063	282,945	234,808	1,038,279	236,189	340,475	228,909	248,712	1,054,285	16,006	1.5
New Jersey	56,773	46,456	49,153	69,722	222 104	65,222	50,328	60,975	68,625	245,150	23,046	10.4
New York and Penna.	45,459	49,715	35,693	30,790	161,657	45,845	55,555	36,337	33,525	171,262	9,605	5.9
Southern	643,371	452,969	506,397	665,070	2,267,807	693,927	583,960	621,749	766,335	2,665,971	398,164	17.6
Alabama	56,729	29,764	60,387	86,425	233,305	77,483	51,039	51,785	83,945	264,252	30,947	13.3
Arkansas and Texas	22,675	17,450	9,880	18,663	68,668	19,455	13,339	26,030	23,486	82,310	13,642	19.9
Florida	46,493	46,917	40,683	40,281	174,374	46,501	54,080	48,179	58,481	207,241	32,867	18.8
Georgia	116,009	70,763	92,101	142,233	421,106	137,470	111,003	122,869	166,473	537,815	116,709	27.7
Louisiana	39,492	35,133	15,991	30,844	121,460	37,255	37,555	37,223	38,025	150,058	28,598	23.5
Mississippi	30,341	5,833	20,927	28,176	85,277	26,758	14,622	18,550	24,111	84,041	−1,236	−1.4
North Carolina	85,367	49,088	51,528	69,911	255,894	85,031	64,148	82,966	78,447	310,592	54,698	21.4
South Carolina	78,239	51,528	57,382	87,704	274,853	97,041	68,445	67,661	96,075	329,222	54,369	19.8
Tennessee	65,487	74,262	80,495	67,165	287,409	66,193	91,599	94,715	92,155	344,662	57,253	19.9
Virginia	102,539	72,231	77,023	93,668	345,461	100,740	78,130	71,771	105,137	355,778	10,317	3.0
Midwest[5]	160,451	153,611	183,836	196,252	694,150	192,101	160,129	198,065	195,454	745,749	51,599	7.4
Illinois	34,136	49,181	59,206	55,528	198,141	63,356	44,948	58,539	57,319	224,162	26,021	13.1
Indiana	18,035	18,816	31,315	30,881	99,047	19,764	35,024	33,723	28,036	116,547	17,500	17.7
Michigan[6]												
Ohio	108,280	85,614	93,225	109,843	396,962	108,981	80,157	105,803	110,099	405,040	8,078	2.0
Undistributed[7]	16,720	15,614	17,734	14,532	64,600	16,736	16,435	17,665	16,083	69,919	5,319	8.2
United States	1,169,652	1,017,851	1,103,248	1,237,063	4,527,814	1,282,227	1,233,264	1,183,950	1,356,296	5,055,737	527,923	11.7

[1] The production was by 145 plants, including 1 that ceased operation in 1940.
[2] The production was by 147 plants, including 1 that ceased operation in 1941.
[3] Partly estimated.
[4] The production was entirely in Massachusetts.
[5] Except Michigan, which is included with undistributed States.
[6] Included with undistributed States.
[7] California and Michigan.

for 1941—25.4, 24.4, 23.4, and 26.8 per cent—show that the production was distributed somewhat more uniformly than in 1940. Of the 145 plants that produced superphosphate in 1940, 18 did not operate during the first quarter of the year, 27 in the second quarter, 12 in the third quarter, and 3 in the fourth quarter; the corresponding figures for the 147 plants that produced superphosphate in 1941 are 12, 16, 11, and 5. The plants that operated in every quarter of the year totaled 107 in 1940 and 117 in 1941. Of the plants that failed to operate in every quarter of 1940, 14 did not produce superphosphate in two quarters and 3 in three quarters; likewise, 13 plants did not operate in two quarters and 1 in three quarters of 1941. Distributed by regions and states, the plants that did not operate in every quarter of 1940 are as follows: New England (Massachusetts) 2; Southern 32 (Georgia 14, Alabama 6, North Carolina 4, Mississippi 3, South Carolina 2, and Louisiana, Tennessee and Virginia 1 each); the Midwest 4 (Ohio 3, Indiana 1). The corresponding figures for 1941 are as follows: New England (Massachusetts)1; Middle Atlantic 2 (Maryland 1, Pennsylvania 1); Southern 25 (Georgia 7, North Carolina 5, Alabama 4, Mississippi 3, South Carolina 3, and Arkansas, Louisiana and Virginia 1 each); and Midwest 2 (Indiana 1, Ohio 1).

On the basis of output per plant, the 147 plants that produced superphosphate in 1941 may be placed in six groups, namely, (1) 19 plants with an output of less than 10,000 tons each (average 6,746 tons), (II) 67 with 10,000—24,999 tons (average 16,876), (III) 38 with 25,000—49,999 (average 34,786), (IV) 10 with 50,000—74,999 (average 61,446), (V) 7 with 75,000—100,000 (average 88,262), and (VI) 6 with more than 100,000 (average 207,115) (Table 6). In point of tonnage produced in 1941, the total output of each group was in the descending order III, VI, II, V, IV, I. Except for groups IV and

Table 6

Production of Ordinary Superphosphate in Relation to Annual Output of Plants, Calendar Years 1940 and 1941

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

Annual Production	Plants		Annual Productive Capacity		Production: Quantity		Production: Fraction of Total	
	1940	1941	1940	1941	1940	1941	1940	1941
Short tons	Number	Number	Short tons	Short tons	Short tons	Short tons	Per cent	Per cent
<10,000	[1]27	19	[1]855,600	596,200	168,983	128,171	3.7	2.5
10,000–24,999	[2]67	[2]67	[2]2,855,700	[2]2,706,600	1,043,621	1,130,721	23.1	22.4
25,000–49,999	35	38	2,801,800	2,844,600	1,251,011	1,321,866	27.6	26.1
50,000–74,999	10	10	974,200	911,300	607,271	614,456	13.4	12.2
75,000–100,000	5	7	598,500	757,100	407,363	617,831	9.0	12.2
>100,000	4	6	1,462,500	1,715,600	1,049,565	1,242,692	23.2	24.6
Total	148	147	9,548,300	9,531,400	4,527,814	5,055,737	100.0	100.0

[1] Including 1 plant that operated in 1940 but did not operate in 1941 and is now inactive, and 3 plants that did not operate in 1940 but did operate in 1941 and are currently active.
[2] Including 1 plant that operated in 1940 and 1941 but is now inactive.

Table 7

Production of Ordinary Superphosphate Classified by Number of Plants Operated by Individual Companies, Calendar Years 1940 and 1941

(Includes all grades of ordinary superphosphate and wet-mixed base expressed as equivalent 16 per cent superphosphate.)

Plants operated by individual companies: Range	Total			Superphosphate produced: Quantity		Fraction of total	
	1940	1941		1940	1941	1940	1941
Number	Number	Number	Companies Number	Short tons	Short tons	Per cent	Per cent
9–24	76	78	5	2,059,398	2,247,776	45.5	44.5
2–8	[1]30	29	10	1,414,808	1,604,833	31.2	31.7
1	[2]39	[2]40	[3]40	1,053,608	1,203,128	23.3	23.8
Total	145	147	55	4,527,814	5,055,737	100.0	100.0

[1] Including 1 plant that ceased operation in 1940.
[2] Including 1 plant that ceased operation in 1941.
[3] Thirty-nine companies in 1940 and 40 in 1941, including 1 company (operating 1 plant) that ceased the manufacture of superphosphate in 1941.

V, the relative order in 1940 was the same as in 1941. The combined outputs of groups II and III in 1941 amounted to 2,452.587 tons produced in 105 plants or 48.5 per cent of the total production, compared to 2,294, 632 tons (50.7 per cent of total production) from 102 plants in 1940. Plants in group I accounted for only 2.5 per cent of the total production in 1941, whereas those in groups II, III, VI accounted for 22.4, 26.1, and 24.6 per cent, respectively. The greatest increase in 1941 over 1940, in both tonnage and per cent, occurred in group V (210,468 tons, 51.7 per cent). On the other hand, group I showed a decrease of 40,812 tons (24.2 per cent).

In 1941, five companies operating 78 plants (9 to 24 plants per company) produced 2,247,-776 tons or 44.5 per cent of the total domestic output of superphosphate; 10 companies operating 29 plants (2 to 8 plants per company) produced 1,604,833 tons (31.7 per cent), while the 40 companies that each operated only one plant made 1,203,128 tons (23.8 per cent) (Table 7). The percentages produced by the three groups were nearly the same in 1940 as in 1941. The 1941 output of the first group was at the average rate of 449,555 tons per company (28,817 tons per plant), that of the second group 160,483 tons per company (55,339 tons per plant), and of the third group 30,078 tons per company and per plant. The increase in production in 1941 over 1940 was 188,378 tons (9.1 per cent) for the first group, 190, 025 tons (13.4 per cent) for the second group, and 149,520 tons (14.2 per cent) for the third group.

Relation of Production to Productive Capacity of Superphosphate Plants

As shown in Table 8, the four plants that each have annual productive capacities in excess of 200,000 tons produced the greatest proportion (20.27 per cent) of the 1941 output of superphosphate. It will be noted, however, that the figure for this group does not differ greatly from those for the four groups having productive capacities of 25,000—49,999, 50,000—74,999, 75,000—99,999, and 100,000—200,000 tons, respectively. In fact, the difference between the production in the highest and the lowest of the five groups is only 96,032 tons or 1.9 per cent of the total output in 1941. The spread between these groups was considerably higher in 1940 (267,508 tons, 5. 9 per cent). On the other hand, the plants that each have annual productive capacities of less than 25,000 tons produced only 3.2 per cent (147,042 tons) of the domestic output in 1940 and 3.1 per cent (154,425 tons) in 1941. The greatest increase (23.4 per cent) in the 1941 production over that in 1940 occurred in plants having productive capacities of 100,000—200,000 tons each, whereas the output from plants having capacities in excess of 200,000 tons decreased nearly 2.3 per cent. The plants having productive capacities in excess of 200,000 tons operated at 70.1 per cent of capacity in 1941, as compared to 43.7 per cent for plants having capacities in the range 25,000—49,999 tons; the other groups of plants operated at 48.8—58.6 per cent of the total capacity per group.

(Continued on page 24)

Table 8

Production of Ordinary Superphosphate in Relation to Annual Productive Capacity of Plants, Calendar Years 1940 and 1941

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

Annual productive capacity		Plants		Production			
				Quantity		Fraction of total	
Range	Total	1940	1941	1940	1941	1940	1941
Short tons	Short tons	Number	Number	Short tons	Short tons	Per cent	Per cent
< 25,000	[1]271,700	[1]16	15	147,042	154,425	3.2	3.1
25,000–49,999	[2]2,122,200	[2]59	[2]59	781,077	928,804	17.2	18.4
50,000–74,999	2,021,600	33	33	859,116	985,668	19.0	19.5
75,000– 99,999	1,692,000	20	20	904,934	990,709	20.0	19.6
100,000–200,000	1,978,300	16	16	787,060	971,295	17.4	19.2
>200,000	1,462,500	4	4	1,048,585	1,024,836	23.2	20.3
Total....	9,548,300	148	147	4,527,814	5,055,737	100.0	100.0

[1] Including 1 plant that operated in 1940 but did not operate in 1941 and is now inactive.

[2] Including 1 plant that operated in 1940 and 1941 but is now inactive, and 3 plants that did not operate in 1940 but did operate in 1941 and are currently active.

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Principle Articles in This Issue

Grade Conferences

Columbia, S. C.

The conference on grades held in Columbia, S. C., on July 13th was attended by agronomists representing Georgia, South Carolina, North Carolina, and Virginia, 18 in all, and by the following Federal men: F. W. Parker, OPA; Wm. H. Martin and S. L. Clement, WPB; W. F. Watkins, S. B. Akins, and L. G. Porter, USDA. The National Fertilizer Association was represented by Charles J. Brand, H. R. Smalley, H. B. Siems, and H. B. Mann.

Dr. R. W. Cummings of North Carolina was elected chairman and presided during the day, and F. W. Parker led the discussion on grades. Dr. Wm. H. Martin outlined the action taken at previous conferences, emphasizing the need for adopting grades that will save nitrogen and insure its equitable distribution, and of coordinating the recommendations of adjoining States. Mr. Brand discussed the fertilizer supply situation, stating that, barring transportation or other unforeseen difficulties or unusual demand, phosphate and potash supplies should be adequate but that the nitrogen supply is definitely short and very uncertain. Dr. Parker explained how nitrogen materials are being allocated, and W. F. Watkins spoke on crop goals and nitrogen needs.

T. B. Hutcheson of Virginia was asked to describe the procedure followed at the Washington and Philadelphia conferences, especially the elimination of nitrogen from fertilizers for small grain crops this fall. After some discussion the conference went on record as recommending the omission of chemical nitrogen from small grain fertilizers for the fall season but with the understanding that in so far as possible nitrogen materials be made available for top-dressing these crops.

The conference then proceeded to select a list of grades for each State—North Carolina, South Carolina, and Georgia—to be recommended for consideration at the general industry-farm group conference in Atlanta.

Jacksonville, Fla.

The grade conference held in Jacksonville, Fla., on July 14th was attended by 8 members of the staff of the University of Florida and 2 from the Florida State Department of Agriculture. The Federal men present were Messrs. Martin, Clement, and McIntosh of WPB; Parker of OPA; Watkins, Porter,

and Akins of USDA. The National Fertilizer Association was represented by Messrs. Brand, Smalley, Holland, Siems, Mann, and Kreiling.

H. G. Clayton, State administrative officer of AAA, was elected chairman. Mr. Brand spoke briefly on the supply situation; W. F. Watkins discussed crop goals and nitrogen needs in general; L. G. Porter presented some figures indicating that oil seed meals may be available for use in fertilizers; and Dr. Wm. H. Martin described the procedures followed in previous conferences.

Harold Mowry, assistant director of the Florida Experiment Station, explained the unusual conditions that prevail in Florida with respect to fertilizer use and needs. He said that several conferences with the industry had been held; that 899 grades were registered in the State last year; that the so-called minor plant foods—magnesium, copper, manganese, and zinc—are widely used; and that the list of grades adopted for Florida would of necessity have to be larger than in most other States. He submitted a list of 33 grades which, after full discussion, was approved for submittal to the Atlanta conference.

Atlanta, Ga.

The General Fertilizer Industry-Farm Group Conference held in Atlanta on July 16th was attended by nearly 300 representatives of the land grant colleges, the Federal agencies, farm organizations, and the fertilizer industry. All 7 States included in this conference—Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi—were well represented.

T. E. Milliman served as chairman and also outlined the fertilizer supply situation, particularly with reference to chemical nitrogen and its allocation. W. F. Watkins, of the U. S. Department of Agriculture, spoke on crop goals, emphasizing the fact that the use of nitrogen will be recommended where it will be most effective in producing the crops needed in the war program.

F. W. Parker described the plan that is being followed in grade reduction. He stated that the objectives are (1) most efficient use of nitrogen, phosphoric acid, and potash, (2) an increase in the plantfood content of fertilizers through elimination of inert filler but not going beyond the limits of the materials available, and (3) reduction in the cost of manufacture. He stated that the principles that will govern any action taken are (1) to

(Continued on page 20)

A. N. Into Appointed I. M. C. Sales Manager

International Minerals and Chemical Corporation has announced the appointment of A. Norman Into as sales manager. Mr. Into, who is a graduate of Yale University, started with the American Cyanamid Company, later becoming head of the export department. He spent ten years as assistant to the general sales manager of the General Chemical Company are signing this position to make his present connection with I. M. C.

Cyanamid Regulations

The War Production Board has sent a letter to all manufacturers and mixers stating that the use of cyanamid will be restricted to the conditioning of mixed goods and that, because of transportation problems, its use will be limited to the area north of Florida and east of the Alabama-Mississippi line extended due north. The cyanamid ordered by manufacturer or mixer will be considered part of his sulphate of ammonia allocation, on the basis of ton for ton.

June Sulphate of Ammonia

The allocation of sulphate of ammonia for fertilizer purposes has resulted in added interest in the production figures published by the U. S. Bureau of Mines. According to their latest report the production of by-product sulphate of ammonia during June amounted to 63,888 tons, a reduction of 4.5 per cent from the May figures. This decrease was to be expected from the shorter calendar month. Shipments during June totalled 57,788 tons, a slight decrease from May shipments. This is reflected in stocks on hand which increased from 13,878 tons on May 31st to 19,760 tons on June 30th.

	Sulphate of Ammonia Tons	Ammonia Liquor Tons NH_3
Production		
June, 1942	63,888	2,720
May, 1942	66,874	2,817
June, 1941	61,376	2,678
January-June, 1942	383,890	16,751
January-June, 1941	368,264	15,572
Shipments		
June, 1942	57,788	2,593
May, 1942	61,488	2,539
June 1941	51,174	2,434
Stock on hand		
June 30, 1942	19,760	761
May 31, 1942	13,878	782
June 30, 1941	37,565	810
May 31, 1941	27,787	774

The Bemis Rip-Cord Closure

The Bemis Rip-Cord Closure, introduced by Bemis Bro. Bag Company, is a new method of closing cotton and burlap bags which provides a simple, quick means of opening them without injury. The Rip-Cord is sewn into the closure of the bag with a regular two-thread bag closing machine. Only minor inexpensive adjustments are necessary to adapt the machine to sewing the Rip-Cord. A quick jerk of the Rip-Cord opens the bag instantly. The bag is not torn or damaged and valuable time has been saved.

Ten Rip-Cord closed bags can be piled on a hand truck, whereas only eight tied top bags can be loaded on the same size truck thus 20 per cent fewer trips from warehouse to freight car, or vice versa, are required. This time saving is important in these days of labor scarcity. Furthermore, the bags are more compact and economize warehouse storage space which is at a premium right now.

Where a bag user has been closing his bags with wire ties, the Rip-Cord Closure permits him to use bags two inches smaller, thus providing an economy in bag costs.

By pulling the Rip-Cord part way across the bag, the Bemis Rip-Cord Closure provides a useful pouring spout where only a part of the contents of the bag is to be removed at a time.

The Office of Agricultural Defense Relations is urging all bag users to conserve their bag carefully. The Rip-Cord Closure ties in with this conservation program because through its use bags can be opened and closed innumerable times without injury.

Tops of bags closed with wire ties are apt to get snagged in handling, shipping or opening. Bags sewn on bag closing machines are usually opened by cutting the stitching with a knife and frequently the cloth is damaged. The possibility of injuries of this nature to bags is eliminated when the Rip-Cord Closure is used.

The supply of cotton and burlap bags must be conserved in the interest of our war effort. The Rip-Cord Closure makes it possible to get many extra trips from every bag. This and the other advantages make the Bemis Rip-Cord Closure particularly appropriate as a wartime measure.

Complete information can be obtained from Bemis Bro. Bag Co., St. Louis, Mo., or from any of their factories.

Canada Investigates Phosphatic Slag

At the recent Canadian Chemical Convention, one of the subjects discussed was the utilization of phosphatic open-hearth slag as a fertilizer material. According to F. E. Iathe, of the Canadian Research Council, the waste slag produced annually in the steel furnaces at Sydney, Nova Scotia, contains as much phosphoric acid and lime as 60,000 tons of 20 per cent superphosphate and 100,000 tons of limestone, both of which are badly needed by the soils of the Maritime Provinces. Experimental work has shown that this slag can be cheaply prepared for the market by pouring it molten into water and subsequently grinding it to powder. Chemical tests have proved that soil acids will more readily attack a rapidly cooled slag, so that much, and possibly all, of the contained phosphoric acid and lime become quickly available for plant growth. These results have been confirmed by the increased yield of barley grown on Nova Scotia soils to which the specially prepared slag had been applied. Field tests with oats and clover are under way on both the Central Experimental Farm at Ottawa and experimental stations in Nova Scotia.

FERTILIZER MATERIALS MARKET

NEW YORK

Little Change in Markets or Prices. Triple Superphosphate Production Lessened. New Prices on Sulphate of Ammonia Expected. Active Interest in Organics.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, July 30, 1942.

Since last report, there has been practically no change in either available supplies or price of various fertilizer materials. This is not unexpected because, in the first place, producing plants have been operating for some months at maximum capacity, and ceilings established by OPA have stabilized prices. Generally speaking, demand still exceeds available supplies, particularly as regards all forms of chemical nitrogen.

Triple Superphosphate

Because of government expected requirements for the Lend-Lease program, forward tonnages cannot be confirmed, but demand by manufacturers is very heavy and tentative bookings through June, 1943, have been made. This, if confirmed, will practically exhaust productive capacity of producing companies. A considerable reduction in production in 1943 as against 1942 will come about, due to conversation of several triple plants from that material to the production of elemental phosphorus needed in the war effort. As far as price is concerned, it is now indicated that price for the year 1943 will be the same as price prevailing in 1942.

Potash

There is considerable speculation as to whether U. S. production will completely fill domestic requirements, but it is anticipated that, with a given percentage of manure salts fairly distributed, this production in addition to production of high analysis material will completely fill the country's needs. Prices previously released will maintain through May, 1943.

Sulphate of Ammonia

As known, this material is subject to allocation. The War Production Board has announced allocations to manufacturers based upon amount of nitrogen they received during last year, and as revealed in reports submitted by the manufacturers to WPB. There will not be sufficient sulphate to answer requirements, and the nitrogen needed to fill out the fertilizer program will necessarily come from other sources. New seasonal prices have not yet been announced, but negotiations with OPA are taking place with the general thought that new prices will be very close to the previous year, with perhaps some slight advance to take care of increased costs of production. It is indicated that prices will be very close to $28 and $29, same as last year, and which will prevail during the early and late season periods of shipments, respectively.

Nitrate of Soda

This material is likewise subject to allocation by WPB. Supply is catching up with demand, but is still short of actual requirements in the fertilizer trade. Price remains unchanged.

Cyanamid

A small proportion of the production has been contracted for fertilizer use, but the vast majority of total production will be used in war industries. Therefore, the supply available for agriculture is very limited. Previous prices are being maintained.

Ordinary Superphosphate

In spite of expected tremendous demand by AAA in continuation of their Soil Conservation program, it is anticipated that existing supplies are ample to provide for that entire need, plus the needs of the fertilizer industry. Prices remain firm at previous levels.

Organics

Because of lack of chemical nitrogen, demand for all types of organics is active. Con-

siderable forward tonnage has been booked, and there is active interest for shipments through June, 1943. All prices governing are at the ceilings prescribed by OPA, so there can be no change in that structure on the part of the various manufacturers unless some change is made by the price-fixing agency.

BALTIMORE

Shortage of Nitrogen in Fertilizer Mixtures Expected. Menhaden Catch Reported Light. No Change in Superphosphate Prices.

Exclusive Correspondence to "The American Fertilizer"

BALTIMORE, July 28, 1942.

All indications point to a shortage of ammonia in fertilizer mixtures during the coming spring season due to restriction of mineral ammoniates such as sulphate of ammonia and nitrate of soda, as well as liquid ammonia.

Organic Ammoniates.—The market on feeding tankage continues firm at ceiling price of $6.00 per unit of nitrogen, f. o. b. shipping point, which will have a tendency to make it impossible to use organic ammoniates in fertilizer mixtures, due to the fact that the price on complete fertilizer will hardly permit the use of such high price ingredients.

Nitrogenous Material.—There are no offerings on the market at the present time, due to limited supplies of raw material.

Sulphate of Ammonia.—Up to the present time, price schedule for the new season has not been announced, but is expected momentarily. There are reports to the effect that OPA is anxious to retain last year's market, even though it may be necessary to subsidize producers on account of higher freight rates and cost of production.

Nitrate of Soda.—Deliveries are still being allocated, and will probably continue to be for the duration of the war. The present price of the Chilean product continues unchanged at $33.00 per ton of 2,000 lb., in 100-lb. bags, with usual differential for 200-lb. bags and in bulk.

Fish Scrap.—There have been no recent sales reported as the catch up to the present time has been light and considerable tonnage is still to be delivered against contracts previously booked on "if and when made" basis.

Superphosphate.—There is no change in the situation which continues firm at ceiling price of $9.60 per ton of 2,000 lb., basis 16 per cent for run-of-pile, and $10.10 for flat 16 per cent grade, both in bulk, f.o.b. producers' works, Baltimore.

Bone Meal.—The demand and offerings are practically nil.

Potash.—It is reported that the various domestic manufacturers have now about sold up their production during the coming fertilizer year, and no price change is anticipated.

Bags.—Nothing new to report in the market, as far as burlap bags are concerned. Due to war situation, it would appear that manufacturers will not be able to count on any great quantity of burlap for the coming spring season's business.

CHARLESTON

Hope to Replace Sulphate of Ammonia with Nitrate of Soda. Organic Materials in Good Demand.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, July 27, 1942.

It is the hope of WPB that a good part of the shortage in sulphate of ammonia which has been used in mixed goods can be made up by Chilean nitrate of soda, if sufficient ships can be obtained.

Nitrogenous.—Sellers of this material are still refusing to quote.

Blood.—Feed buyers, who are the only buyers of blood, are so anxious for this material that the price is now $5.75 per unit of

ammonia ($6.99 per unit), f.o.b. Chicago.

Fish Meal.—The ground material is selling at $72.50, f.o.b. Chesapeake producing plants.

Cottonseed Meal.—The 8 per cent grade is quoted at $35.25, Memphis, $38.00, Atlanta.

CHICAGO

Little Fertilizer Organics Offered in the Market. Feed Materials in Steady Demand with Supplies Short.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, July 27, 1942.

Little change is noticeable in organics. Demand continues but offerings are few and far between. No seller appears inclined to offer futures, and such odd lots which have put in their appearance are for nearby shipments, and are quickly absorbed.

Steady call for meat scraps and digester tankage is still in evidence, while supplies are seemingly short. Under such circumstances, ceiling prices are easily maintained.

Nominal prices are as follows:

High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, $5.37 per unit ammonia ($6.53 per unit N) blood, $5.75 to $5.80 ($6.99 to $7.05 per unit N); dry rendered tankage, $1.21 per unit of protein, Chicago basis.

CLASSIFIED ADVERTISEMENTS

Advertisements for sale of plants, machinery, etc., and for help and employment, in this column, same type as now used, 60 cents per line, each insertion.

POSITION WANTED—Successful superintendent informed in business end as well as factory desires contact with concern that can use such a man to our mutual advantage. Address "545," care THE AMERICAN FERTILIZER, Philadelphia.

TENNESSEE PHOSPHATE

Shipments Continue at Record Levels. Protest Against Ban on Ground Rock. Freight Increase Abated.

Exclusive Correspondence to "The American Fertilizer"

COLUMBIA, TENN., July 27, 1942.

Threshing of all kinds of grain is about over, with reports showing some extra good yields of wheat, rye and oats. When good years come around, it is especially notable that the Middle Basin land of Tennessee has mostly been under cultivation for 150 years without the use of fertilizer of any kind except natural manure and residues, with some lime.

Even after a drain of calcium and phosphorus from 150 years' farming, this Maury silt loam still contains in the plow depth of soil an amount of phosphorus in the form of natural disintegrated phosphate rock equivalent to from 15 to 75 tons of rock phosphate per acre which would be needed to bring the ordinary land of the corn belt up to an equal content.

Shipments of all grades of rock to all consuming channels continue at a rate which makes it certain that 1942 will break the record of previous years in the Tennessee field. The optioning and prospecting of phosphate properties is active, both by established concerns and by some new interests entering the field.

A number of reports have reached here to the effect that USDA and transportation authorities in Washington are being urged to include ground phosphate rock for direct application among the so-called "low grade" fertilizers to which cars will be refused for transportation during the emergency. In view of the fact that ground phosphate rock during the past 40 years has demonstrated its value in crop production, that it contains 50 per cent more P_2O_5 than does 20 per cent

superphosphate, and that it is usually shipped in cars of 40 to 60 tons, it is hoped that these reports are only unfounded rumors.

As a result of the storm of protest, the recent increase of 6 per cent in freight on bagged ground phosphate rock has finally been changed so that the 3 per cent increase will apply to shipments of this material either in bags or in bulk. The change, however, will not become effective until August 17th, which means that the farmers will have to pay out over $3,000 in extra freight charges on the 25,000 tons which will be moved during this time interval.

GRADE CONFERENCES

(Continued from page 14)

maintain the present phosphoric acid and potash content in mixed fertilizers in so far as possible, (2) the use of the fertilizer year 1940–41 as the base, and (3) recognition of the fact that the job starts with the land grant colleges.

Dr. William H. Martin, dean of the College of Agriculture and director of the New Jersey Experiment Station, acting as a consultant to the War Production Board, emphasized that nitrogen and mixed fertilizers can be equitably distributed by the fertilizer industry with the aid of the State agricultural colleges, experiment stations, extension services, and Federal agencies in educating farmers and local agents and dealers.

After considerable discussion, a motion was passed which in effect put the conference on record as concurring in the action taken at previous conferences in other regions with respect to omitting chemical nitrogen from mixed fertilizers for use on fall-sown grain to be harvested for grain but recommending that the U. S. Department of Agriculture be asked to give consideration to the inclusion of chemical nitrogen in mixed fertilizers for use on fall-sown grains to be used for pasture.

The Florida recommendation as to grades was presented by H. G. Clayton, State administrative officer of AAA, who served as chairman of the Jacksonville conference. The list included 33 grades as compared to 899 grades registered in Florida last year. The vote for adoption of the recommended list was unanimous.

H. E. Hendricks, extension agronomist, University of Tennessee, presented a list of 9 grades for that State which was adopted without change. Dr. R. W. Cummings, head of the Department of Agronomy, North Carolina State College, presented a list of 18 grades for that State. After some discussion the list was revised by eliminating one grade and adding one. It was then adopted.

Dr. H. P. Cooper, director of the South Carolina Experiment Station, presented the South Carolina list which after some slight revision was adopted. The final approved list included 11 grades.

The Georgia recommendations were presented by Prof. E. C. Westbrook, extension agronomist. The list included 14 grades, but during the discussion two were dropped and one added. The final list adopted for Georgia included 13 grades.

Dr. Norman Volk presented the Alabama list which includes only four grades and which was adopted without revision.

Dr. Clarence Dorman, director of the Mississippi Experiment Station, presented a list of 6 grades for that State and moved its approval. His motion, after amendment to provide for a grade conference to be held in Mississippi within the next few days, was carried.

The question of using oil-seed meals in fertilizers was discussed briefly at the close of the meeting, and it was the consensus of the group that Government plans for use of seed meals in fertilizers should be worked out as quickly as possible.

It was moved by R. B. Douglass, and supported by J. W. Dean, that a vote of thanks be extended to the men from Washington and to the agronomists of the several States who participated in all of the conferences that led up to the action taken at this meeting. The motion was carried unanimously.

On a motion made by R. L. King, the conference went on record as pledging the fertilizer industry to make every possible effort to insure the equitable distribution of nitrogen to farmers throughout the United States. The motion carried unanimously.

THE AMERICAN FARMER'S STAKE IN THE OPA PRICE CONTROL PROGRAM

(Continued from page 7)

of the military program alone, let alone the saving of our civilian population. They can do this while devoting a major part of their energies to seeing that scarce commodities are fairly distributed to the American consuming public instead of being the object of a competitive buying contest which has as its guiding principle survival of the richest.

Price Control a War Necessity

While winning the war at the minimum cost to the tax-payer is, of course, important, it is not nearly as important as the successful conduct of the war. But here, too, price control has a crucially important bearing. If prices are held in line and it is known they are going to be held in line, the whole forward planning of war industry can be simplified and hence speeded up. However, I am sure that this is an aspect of price control on which it is not necessary for me to dwell in speaking to a company of this kind. Likewise, I am sure it is not necessary to remind this group of the important bearing which a successful program of price control has on the maintenance of high civilian and military morale.

If it is true, and it most certainly is, that an effective system of price control which would maintain prices on an even keel is essential both in a fully effective presentation of the war and the winning of a stable peace, it may well be asked why there is not universal insistence upon the success of such a program. As I see them, the reasons are diverse and complicated and I do not propose to detain you by elaborating upon them here. For one thing, the alternative to effective price control is commonly characterized by a word which President Roosevelt has noted for most people in our country as vague and meaningless—the word *inflation*. By and large we do not have a clear idea of what inflation means, and most of us have even greater difficulty in relating its disastrous impact to our personal affairs. Perhaps one reason is that so many of us have been preoccupied by the talk of acquiring lots of money that it is hard for us to imagine having too much money which is the essence of inflation. In Europe, of course, the situation is different. At least as late as the middle thirties, I observed in conversations in Europe that the spector of inflation sent cold shivers up and down the backs of those, numbered by millions, who had been completely through it and completely ruined by it after the last war. In this country, however, we have a formidable educational job to do in creating a popular understanding of the terror of inflation. I hope, and even pray, that the education will not be provided by the experience of a full blown inflation.

Dangers of Inflation Underestimated

Regardless of the reasons, however, the fact is that we do not as a nation have an understanding of the danger of inflation which now confronts us. This is fully attested by the fact that virtually all of the President's 7-Point Program is to avoid inflation, except the holding of the line of placing a general ceiling on prices, remains to be carried out. I am sure this is due in part simply to the time-consuming nature of some of the adjustments, such as those in the field of taxation, which must be made if we are to relieve the tremendous upward pressure on prices now being exerted by excess billions of purchasing power in the form of wages, dividends, etc., coming into the market to compete for a shrinking supply of civilian goods. However, a major part of the difficulty, I am sure, remains due to the fact that there is not anything like a general appreciation of the terror of inflation by which we remain so definitely confronted.

Farmers Most Vitally Interested

Of all people, however, the farmers of the United States, victims almost for a generation of the last wartime inflation, should not only be alive to this terror but determined to avoid it, if necessary, by the elimination of momentarily attractive special privileges for themselves. I hope, even pray, that our farm

See Page 4

population will realize this danger and take decisive steps to avoid it—that it won't again let itself in for the terrible beating which failure of our price control program would surely inflict upon it.

Likewise, as members of an industry, the fortunes of which are completely intertwined with those of agriculture, I feel sure that you would be well advised to use your great influence to help the farmers to avoid the danger now definitely confronting them of making a decisive contribution to the sort of disaster which engulfed them during the last war. Happily, by virtue of the price control program, they have opportunity to escape this disaster. If this statement does anything to help them realize this opportunity and thus give agriculture the economic strength and security it deserves, I will feel fully repaid for the wear and tear of making it.

ANALYSIS OF THE PRODUCTION OF ORDINARY SUPERPHOSPHATE IN THE UNITED STATES IN THE CALENDAR YEARS 1940-1941

(Continued from page 11)

As shown in Table 9, the total domestic production of superphosphate in 1940 amounted to only 47.7 per cent of the total capacity to produce this material, while in 1941 the production was 53.3 per cent of the capacity. On the regional basis the relation of production to productive capacity in 1941 was highest in the Middle Atlantic area (65.8 per cent) and lowest in the undistributed States (42.9 per cent). For the individual states the relation was highest in Tennessee (73.8 per cent) and Maryland (71.6 per cent), and lowest in Arkansas and Texas (34.8 per cent) and Mississippi (36.3 per cent). For the individual plants the relation ranged from 0 to 116.7 per cent in 1940 and from 11.4

Table 9

Relation of Production to Productive Capacity of Ordinary Superphosphate Plants, Calendar Years 1940 and 1941

(Includes all grades of ordinary superphosphate and wet-mixed base expressed as equivalent 16 per cent superphosphate.)

Region and State	1940 Range Per cent	1940 Average[1] Per cent	1940 Total Per cent	1941 Range Per cent	1941 Average[1] Per cent	1941 Total Per cent
New England[2]	16.4– 44.4	27.1	32.9	12.6– 57.1	39.9	43.0
Middle Atlantic	11.5–100.0	60.0	63.6	15.5–120.8	63.9	65.8
Maryland	11.5– 97.2	64.3	70.5	15.5–120.8	76.5	71.6
New Jersey	44.6– 64.8	55.1	50.6	48.7– 77.1	59.7	55.9
New York and Pennsylvania	34.1–100.0	58.5	50.0	25.8– 66.9	49.3	53.0
Southern	0–116.7	40.8	41.6	11.4–101.5	48.1	48.9
Alabama	11.4– 98.3	41.6	37.9	11.4–101.5	46.3	42.9
Arkansas and Texas	12.9– 62.2	38.3	29.1	20.8– 69.4	41.2	34.8
Florida	27.8– 60.1	43.2	42.2	39.2– 67.1	49.8	50.2
Georgia	0– 62.7	30.1	32.9	11.4– 89.3	41.9	42.0
Louisiana	39.3– 56.1	47.4	49.8	27.6– 79.6	56.2	61.5
Mississippi	23.4– 71.1	40.7	36.9	19.7– 64.6	44.2	36.3
North Carolina	20.7–100.0	44.0	43.1	21.7–100.0	50.1	52.3
South Carolina	0–116.7	43.7	39.2	13.8– 96.7	50.2	46.9
Tennessee	21.7– 79.6	48.2	61.6	21.6– 91.0	62.0	73.8
Virginia	38.5– 69.7	51.3	51.7	32.4– 78.3	50.0	53.2
Midwest[3]	17.0– 87.3	50.2	49.8	17.0–101.6	55.0	53.5
Illinois	34.5– 77.0	54.8	57.4	36.8– 80.1	61.6	64.9
Indiana	26.4– 77.9	43.0	41.7	41.7– 87.5	53.0	49.1
Michigan[4]	.....	....	....	.....	....	....
Ohio	17.0– 87.3	51.6	48.9	17.0–101.6	53.6	49.9
Undistributed[5]	30.6– 62.7	46.9	39.6	25.3– 84.7	56.7	42.9
United States	0–116.7	44.2	47.7	11.4–120.8	50.8	53.3

[1] Average of figures for individual plants.
[2] All the plants are in Massachusetts.
[3] Except Michigan, which is included with undistributed States
[4] Included with undistributed States.
[5] California and Michigan.

to 120.8 per cent in 1941. In 1940 three plants produced superphosphate at rates (100.0–116.7 per cent) equal to or above the estimated capacities; in 1941 the productions at four plants were 100.0–120.8 per cent of the estimated capacities. Three plants that were inactive in 1940 produced superphosphate in 1941.

In 1941, 52.7 per cent of the domestic production of superphosphate was in the South, 29.1 per cent in the Middle Atlantic States, 14.8 per cent in the Midwest, 2.0 per cent in New England, and 1.4 per cent in the undistributed States (Michigan and California) (Table 10). As compared to 1941, the 1940 percentages were slightly lower in the South and New England and slightly higher in the Midwest and Middle Atlantic States. In general, the percentage distribution of the production in both 1940 and 1941 was near that of the productive capacity.

(To be continued in the next issue)

OPA Ruling on Organic Fertilizer Materials

In response to an inquiry from The National Fertilizer Association, OPA has advised that the Revised Price Schedule No. 73 on fish meal and fish scrap does not apply to these materials when used for fertilizer, and that Maximum Price Regulation No. 74 on animal-product feeding stuffs does not cover tankage when used for fertilizers. Fish meal, fish scrap and tankage, when used for fertilizer, are under the jurisdiction of the Fertilizer Section of the OPA. When they are sold as straight fertilizer materials, their sales are governed by the General Maximum Price Regulation. Sales of mixed fertilizer in which they have entered are governed by Maximum Price Regulation No. 135.

Table 10

Relative Distribution of Productive Capacity and Production of Ordinary Superphosphate, Calendar Years 1940 and 1941

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

Region and State	Fraction of total productive capacity in			Fraction of total production in		
	Region	United States	1940	Region 1941	United States 1940	1941
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
New England[1]	100	2.5	100	100	1.8	2.0
Middle Atlantic	100	23.6	100	100	31.4	29.1
Maryland	65.9	15.6	73.0	71.7	22.9	20.9
New Jersey	19.6	4.6	15.6	16.7	4.9	4.8
New York and Pennsylvania	14.5	3.4	11.4	11.6	3.6	3.4
Southern	100	57.5	100	100	50.1	52.7
Alabama	11.3	6.5	10.3	9.9	5.1	5.2
Arkansas and Texas	4.3	2.5	3.0	3.1	1.5	1.6
Florida	7.6	4.4	7.7	7.8	3.9	4.1
Georgia	23.5	13.5	18.6	20.2	9.3	10.6
Louisiana	4.5	2.6	5.3	5.6	2.7	3.0
Mississippi	4.2	2.4	3.8	3.2	1.9	1.7
North Carolina	10.9	6.3	11.3	11.7	5.7	6.2
South Carolina	12.9	7.4	12.1	12.3	6.1	6.5
Tennessee	8.6	4.9	12.7	12.9	6.3	6.8
Virginia	12.2	7.0	15.2	13.3	7.6	7.0
Midwest[2]	100	14.7	100	100	15.3	14.8
Illinois	24.8	3.6	28.5	30.1	4.4	4.4
Indiana	17.0	2.5	14.3	15.6	2.2	2.3
Michigan[3]	....	....	.....	.....	....	....
Ohio	58.2	8.6	57.3	54.3	8.7	8.1
Undistributed[4]	100	1.7	100	100	1.4	1.4

[1] All the plants are in Massachusetts.
[2] Except Michigan, which is included with undistributed States.
[3] Included with undistributed States.
[4] California and Michigan.

BUYERS' GUIDE • A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"

This list contains representative concerns in the Commercial Fertilizer Industry, Including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc.
For Alphabetical List of Advertisers, see page 33.

ACID BRICK
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

ACID EGGS
Chemical Construction Corp., New York City.

ACIDULATING UNITS
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMO-PHOS
American Cyanamid Co., New York City.

AMMONIA—Anhydrous
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA LIQUOR
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA OXIDATION UNITS
Chemical Construction Corp., New York City.

AMMONIATING EQUIPMENT
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMONIUM NITRATE SOLUTIONS
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

AUTOMATIC ELEVATOR TAKEUPS
Sackett & Sons Co., The A. J., Baltimore, Md.

BABBITT
Sackett & Sons Co., The A. J., Baltimore, Md.

BAGS AND BAGGING—Manufacturers
Bagpak, Inc., New York City.
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.

BAGS—Cotton
Bemis Bro. Bag Co., St. Louis, Mo.

BAGS—Paper
Bagpak, Inc., New York City
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.

BAGS (Waterproof)—Manufacturers
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.

BAGS—Dealers and Brokers
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

BAGGING MACHINES—For Filling Sacks
Atlanta Utility Works, East Point, Ga.
Bagpak, Inc., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

BAG PILERS
Link-Belt Company, Philadelphia, Chicago.

BEARINGS
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

BELT LACING
Sackett & Sons Co., The A. J., Baltimore, Md.

BELTING—Chain
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

BELTING—Leather, Rubber, Canvas
Sackett & Sons Co., The A. J., Baltimore, Md.

BOILERS—Steam
Atlanta Utility Works, East Point, Ga.

BONE BLACK
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Huber & Company, New York City.

BONE PRODUCTS
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BORAX AND BORIC ACID
American Potash and Chem. Corp., New York City.
Pacific Coast Borax Co., New York City.

BROKERS
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Dickerson Co., The, Philadelphia, Pa.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
Keim, Samuel L., Philadelphia, Pa.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BUCKETS—Elevator
Link-Belt Company, Philadelphia, Chicago
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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BUCKETS—For Hoists, Cranes, etc., Clam Shell, Orange Peel, Drag Line, Special; Electrically Operated and Multi Power
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.

BURNERS—Sulphur
Chemical Construction Corp., New York City.

BURNERS—Oil
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.

CABLEWAYS
Hayward Company, The, New York City.

CARBONATE OF AMMONIA
American Agricultural Chemical Co., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.

CARS—For Moving Materials
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CARTS—Fertilizer, Standard and Roller Bearing
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

CASTINGS—Acid Resisting
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.

CASTINGS—Iron and Steel
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CEMENT—Acid-Proof
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

CHAIN DRIVES—Silent
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAINS AND SPROCKETS
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAMBERS—Acid
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

CHEMICAL APPARATUS
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

CHEMICALS
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Huber & Company, New York City.

CHEMICALS—Continued
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

CHEMICAL PLANT CONSTRUCTION
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHEMISTS AND ASSAYERS
Gascoyne & Co., Baltimore, Md.
Shuey & Company, Inc., Savannah, Ga.
Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

CLUTCHES
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CONCENTRATORS—Sulphuric Acid
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

CONDITIONERS AND FILLERS
American Limestone Co., Knoxville, Tenn.
Dickerson Co., The, Philadelphia, Pa.
Phosphate Mining Co., The, New York City.

CONTACT ACID PLANTS
Chemical Construction Corp., New York City.

COPPER SULPHATE
Tennessee Corporation, Atlanta, Ga.

COTTONSEED PRODUCTS
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

CRANES AND DERRICKS
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

CYANAMID
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

DENS—Superphosphate
Chemical Construction Corp., New York City.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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DISINTEGRATORS
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DRYERS—Direct Heat
Sackett & Sons Co., The A. J., Baltimore, Md.

DRIVES—Electric
Link-Belt Company, Philadelphia, Chicago.

DUMP CARS
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DUST COLLECTING SYSTEMS
Sackett & Sons Co., The A. J., Baltimore, Md.

ELECTRIC MOTORS AND APPLIANCES
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

ELEVATORS
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ELEVATORS AND CONVEYORS—Portable
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

ENGINEERS—Chemical and Industrial
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ENGINES—Steam
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

EXCAVATORS AND DREDGES—Drag Line and Cableway
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.

FERTILIZER MANUFACTURERS
American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Company, Columbus, Ohio.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

FISH SCRAP AND OIL
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

FOUNDERS AND MACHINISTS
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GARBAGE TANKAGE
Wellmann, William E., Baltimore, Md.

GEARS—Machine Moulded and Cut
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GEARS—Silent
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

GELATINE AND GLUE
American Agricultural Chemical Co., New York City.

GUANO
Baker & Bro., H. J., New York City.

HOISTS—Electric, Floor and Cage Operated, Portable
Hayward Company, The, New York City.

HOPPERS
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

IMPORTERS, EXPORTERS
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

IRON SULPHATE
Tennessee Corporation, Atlanta, Ga.

INSECTICIDES
American Agricultural Chemical Co., New York City.

LACING—Belt
Sackett & Sons Co., The A. J., Baltimore, Md.

LIMESTONE
American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

LOADERS—Car and Wagon, for Fertilizers
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Coal and Ash Handling
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying
Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Grinding and Pulverizing
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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MACHINERY—Power Transmission
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Pumping
Atlanta Utility Works, East Point, Ga.
Duriron Co., Inc., The, Dayton, Ohio.

MACHINERY—Tankage and Fish Scrap
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MAGNETS
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MANGANESE SULPHATE
McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

MIXERS
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

NITRATE OF SODA
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

NITRATE OVENS AND APPARATUS
Chemical Construction Corp., New York City.

NITROGEN SOLUTIONS
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

NITROGENOUS ORGANIC MATERIAL
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

NOZZLES—Spray
Monarch Mfg. Works, Philadelphia, Pa.

PACKING—For Acid Towers
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

PANS AND POTS
Stedman's Foundry and Mach. Works, Aurora, Ind.

PHOSPHATE MINING PLANTS
Chemical Construction Corp., New York City.

PHOSPHATE ROCK
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Charleston Mining Co., Inc., Richmond, Va.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Wellmann, William E., Baltimore, Md.

PIPE—Acid Resisting
Duriron Co., Inc., The, Dayton, Ohio.

PIPES—Chemical Stoneware
Chemical Construction Corp., New York City.

PIPES—Wooden
Stedman's Foundry and Mach. Works, Aurora, Ind.

PLANT CONSTRUCTION—Fertilizer and Acid
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

POTASH SALTS—Dealers and Brokers
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

POTASH SALTS—Manufacturers
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PULLEYS AND HANGERS
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

PUMPS—Acid-Resisting
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

PYRITES—Brokers
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

QUARTZ
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

RINGS—Sulphuric Acid Tower
Chemical Construction Corp., New York City.

ROUGH AMMONIATES
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

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SCALES—Including Automatic Bagging
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SCRAPERS—Drag
Hayward Company, The, New York City.

SCREENS
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SEPARATORS—Air
Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Including Vibrating
Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Magnetic
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SHAFTING
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SHOVELS—Power
Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers
Monarch Mfg. Works, Inc., Philadelphia, Pa.

SPROCKET WHEELS (See Chains and Sprockets)

STACKS
Sackett & Sons Co., The A. J., Baltimore, Md.

SULPHATE OF AMMONIA
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

SULPHUR
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

SULPHURIC ACID
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.

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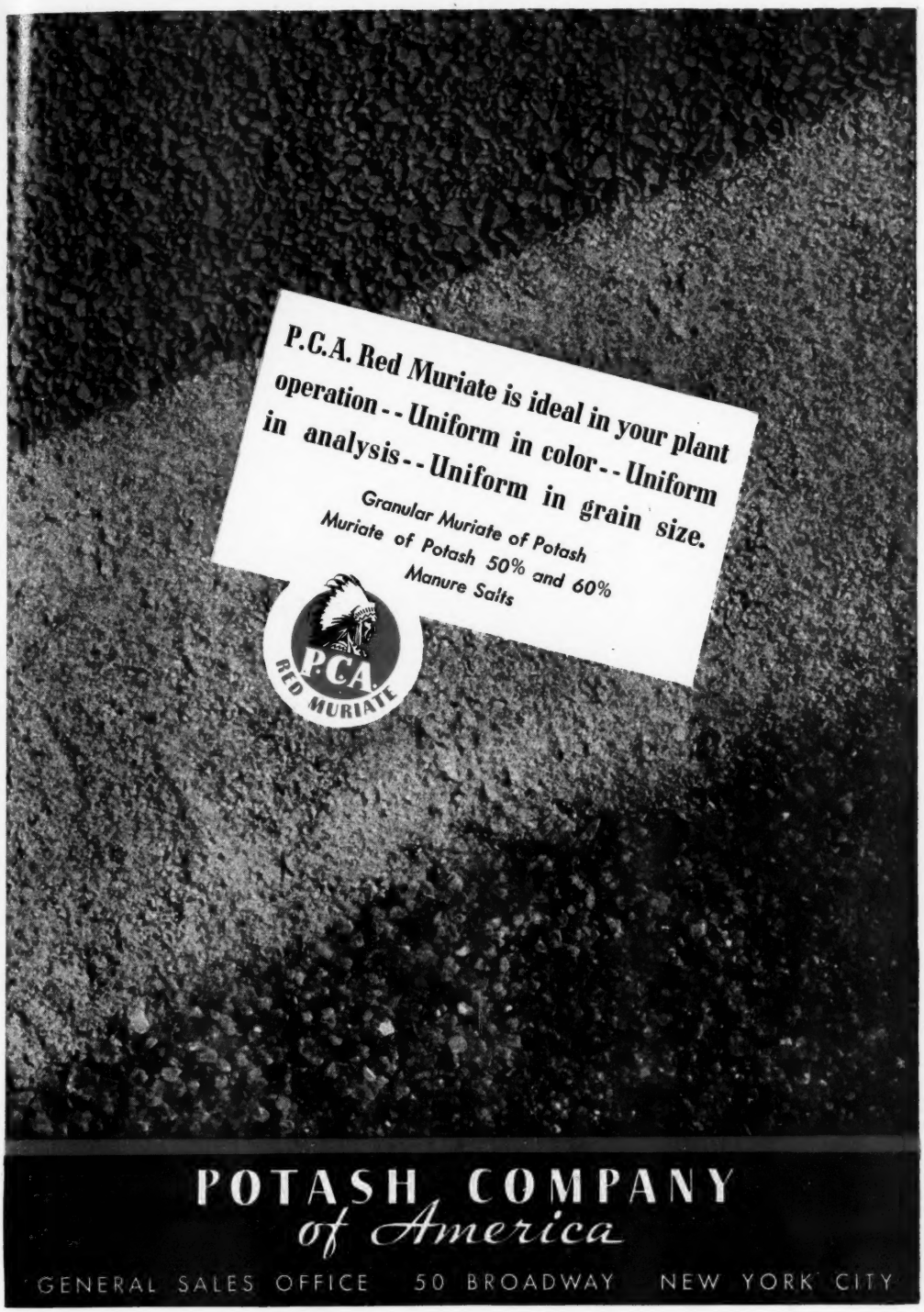
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